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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/796,704

03/09/2004

Toru Takayama

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EXAMINER

FLORES RUIZ, DELMA R

ART UNIT

PAPER NUMBER

2828

MAIL DATE

DELIVERY MODE

09/19/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/796,704	<b>Applicant(s)</b> TAKAYAMA, TORU	
	<b>Examiner</b> Delma R. Flores Ruiz	<b>Art Unit</b> 2828	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 June 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 16-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 16-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>6/11/07</u> | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

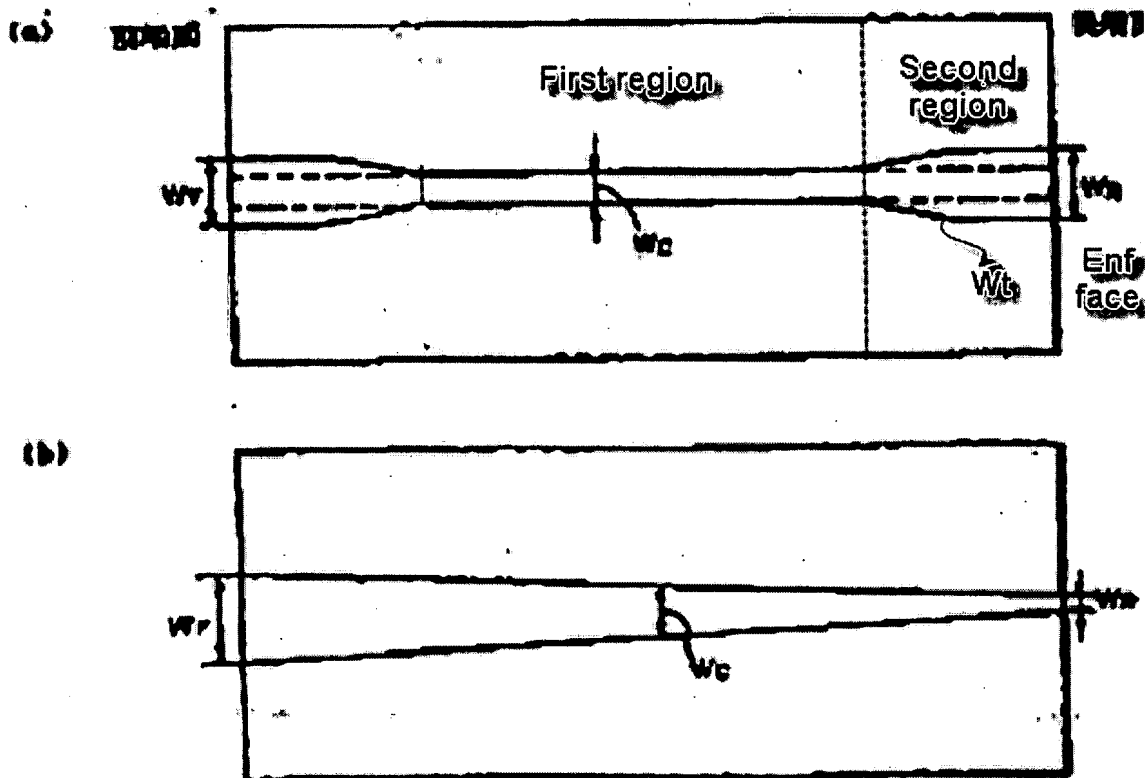
A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

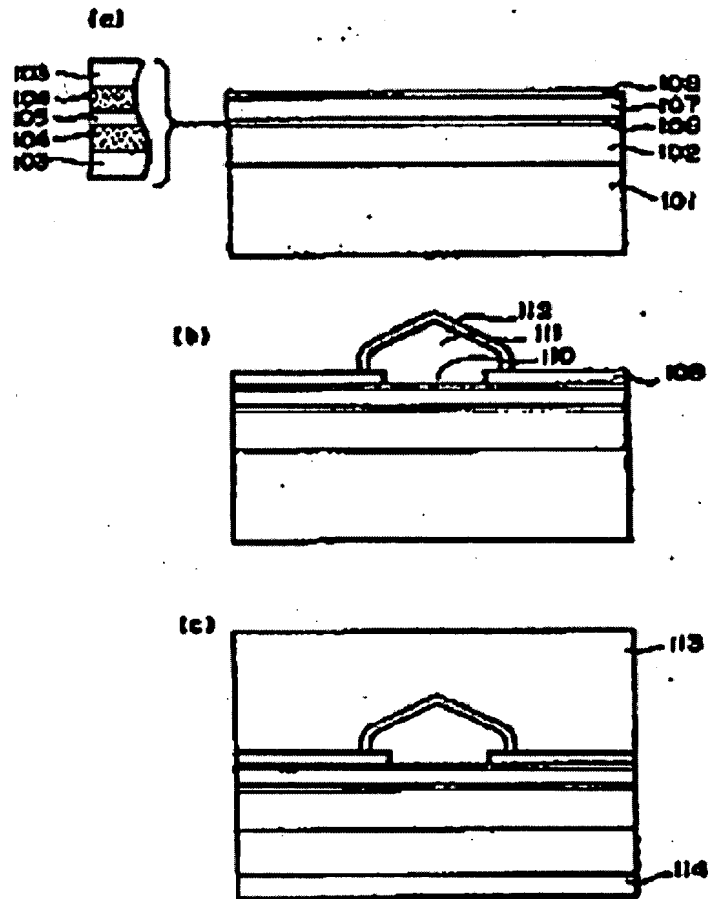
Claims 16 – 23 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Shimoyama Kenji (JP 2000-312052).

***Regarding claim 16***, Shimoyama shown in Figures 1 – 3, discloses a semiconductor laser device formed on a tilted substrate (see Fig. 1A Character 101) composed of a compound semiconductor, comprising an active layer (see Fig. 1A Character 106) and two cladding layers (see Fig. 1A and 1B Characters 102 and 111) interposing the active layer therebetween, wherein one of the cladding layers (see Fig. 1B, Character 111, and Paragraph [0048-0049]) forms a mesa-shaped (see Fig. 1B, Character 110, Paragraphs [0013, 0026-0027 and 0055-0056], the reference call “stripe-like opening”) the ridge includes a first region (see Fig. 3a, Character  $W_C$ ) where a width of a bottom portion of the ridge is substantially constant, and a second region

(See Fig. 3a, Characters  $W_t$ ) where the width of the bottom portion of the ridge is varied continuously, and the second region (see Fig. 3a, Characters  $W_t$ ) is placed between the first region (see Fig. 3a, Character  $W_c$ ) and an end face (see Fig. 3a, Character  $W_R$ ) in an optical path, and end face in an optical path, and a length of the first region is 10% to 50% with respect to a resonator length (see Paragraph [0058-0059]).



【図 1】



**Regarding claim 17**, Shimoyama shown in Figures 1 – 3, discloses the width of the bottom portion of the ridge in the first region is in a range of 1.8  $\mu\text{m}$  to 2.5  $\mu\text{m}$ , the width of the bottom portion of the ridge in the second region is in a range of 2.4  $\mu\text{m}$  to 3  $\mu\text{m}$ , and the resonator length is in a range of 800  $\mu\text{m}$  to 1500  $\mu\text{m}$  (see Paragraphs 0027-0029).

**Regarding claim 18**, Shimoyama shown in Figures 1 – 3, discloses the length of the first region is 10% to 20% with respect to the resonator length (see Paragraphs 0058-0059).

**Regarding claim 19**, Shimoyama shown in Figures 1 – 3, discloses the length of the first region is 100  $\mu\text{m}$  or more, and the resonator length is in a range of 800  $\mu\text{m}$  to 1200  $\mu\text{m}$  (see Paragraphs 0027-0029).

**Regarding claim 20**, Shimoyama shown in Figures 1 – 3, discloses differential resistance  $R_s$  in current voltage characteristics is 6.5  $\Omega$  or less (Paragraph 60).

**Regarding claim 21**, Shimoyama shown in Figures 1 – 3, discloses the width of the bottom portion of the ridge in the first region is in a range of 1.8  $\mu\text{m}$  to 2.5  $\mu\text{m}$ , a difference between the width of the bottom portion of the ridge in the first region and maximum value of the width of the bottom portion of the ridge in the second region is 0.5  $\mu\text{m}$  or less, and the resonator length is in a range of 800  $\mu\text{m}$  to 1500  $\mu\text{m}$  (Paragraphs 0027-0029 and 0033).

**Regarding claim 22**, Shimoyama shown in Figures 1 – 3, discloses the second region is placed between the first region and one end face in the optical path, and between the first region and the other end face in the optical path (see Figure 3A).

**Regarding claim 23**, Shimoyama shown in Figures 1 – 3, discloses at a boundary between the first region and the second region, the width of the bottom portion of the ridge in the first region is substantially the same as that in the second region (see Figure 3A and 3B).

***Claim Rejections - 35 USC § 103***

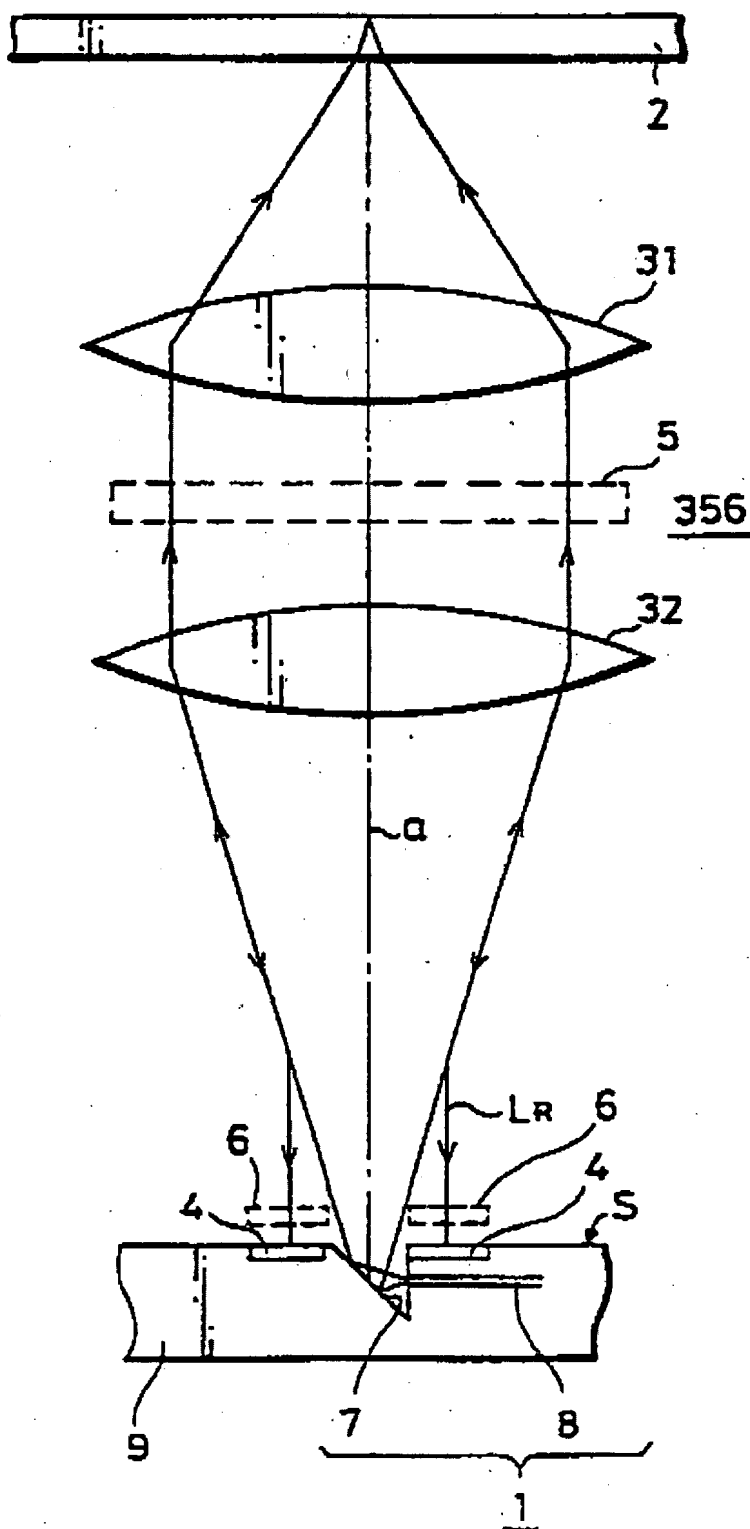
The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 24 – 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimoyama Kenji (JP 2000-312052) in view of Doi et al. (5,679,947).

**Regarding claims 24 – 28**, Shimoyama Kenji discloses the claimed invention except for reflection mirror. However, it is well known in the art to apply the reflection mirror as disclosed by Doi in Figure 1. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to apply the well known reflection mirror as suggested by Doi to the semiconductor laser of Shimoyama Kenji, because it could be used to reflect a laser beam.

**FIG. 6**





### ***Response to Arguments***

Applicant's arguments filed June 11, 2007 have been fully considered but they are not persuasive. Applicant argues the prior art lacks: "Shimoyama et al. fail to disclose a second region where the width of a bottom portion of a ridge is varied continuously in an optical path direction and the second region being placed between a first region and an end face in an optical path. Nor do Shimoyama et al. disclose a length of the first region being 10% to 50% with respect to a resonator length. " The examiner disagree with the applicant arguments since the prior art does teach Shimoyama et al. fail to disclose a second region where the width of a bottom portion of a ridge is varied continuously in an optical path direction and the second region being placed between a first region and an end face in an optical path. Nor do Shimoyama et al. disclose a length of the first region being 10% to 50% with respect to a resonator length as stated in the rejection above.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

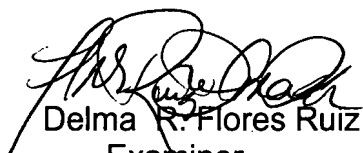
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Delma R. Flores Ruiz whose telephone number is (571) 272-1940. The examiner can normally be reached on M - F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Min Sun Harvey can be reached on (571) -272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic

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Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Delma R. Flores Ruiz

Examiner

Art Unit 2828

DRFR/MH

August 23, 2007



Min Sun Harvey  
Supervisor Patent Examiner  
Art Unit 2828